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DISEASES OF THE NERVOUS SYSTEM

A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

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DISEASES of the NERVOUS SYSTEM

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A PRACTICAL JOURNAL ON PSYCHIATRY AND NEUROLOGY

*Motor and Sensory Phenomena During Therapeutical CO-2 Inhalations**

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A preliminary report of carbon dioxide treatment of psychoneuroses was published by Meduna in this Journal in Vol. VIII, No. 2, February 1947. There Meduna gave a general description of the physiological reactions to the administration of a gas mixture of 20 per cent CO_2 and 80 per cent O_2. Since then a mixture of 30 per cent CO_2 and 70 per cent O_2 has been used. The increase in concentration of CO_2 does not alter the reaction but merely hastens its appearance.

The effect of 30 per cent CO_2 has remarkable features accruing from the temporary alteration of almost every nervous activity, ranging from primordial sensory phenomena to complicated dreams with or without emotional discharge, short temporary states of confusion, hypnagogic hallucinations, and complicated cortical or subcortical motor discharges.

The following observations were made on 30 psychoneurotic patients during a total of over 500 treatments. The description of the symptoms is necessarily summary for many reasons. First, the brevity of therapeutic carbon dioxide anesthesia makes an exact observation of the symptoms difficult; second, no patient reacts to a specific amount of gas in exactly the same way every time; third, not all the responses are seen in every patient or during every treatment; finally, only the motor responses are subject to direct observation, the sensory symptoms have to be inferred from the descriptions given by the patients afterwards.

When the mask is first applied, patients usually close their eyes spontaneously as if to sleep. If told to keep their eyes open, they sometimes will do so even after they have lost consciousness.

After two or three inhalations the breathing of the patient becomes fast and forced and the pulse rate and the blood pressure increase. After a few inhalations the respiratory rate may reach 20 to 60 per minute with some fluctuation, flushing and perspiration appearing.

The time when consciousness is lost varies even in the same patient from one treatment to another. Sometimes consciousness is lost at the third or fourth respiration, at other times the same patient may not lose it in 15 to 20 or more respirations. The time it is lost can be appraised after the treatment by the last count the patient reports having heard. This estimation, however, is unreliable owing to retrograde amnesia. After the second or third inhalation a slight fluttering of the eyelids appears which soon becomes constant. This symptom approximately indicates the beginning of the period

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which the patient cannot recall.

The first motor sign, during the first 10 to 15 respirations, is a single or repeated blinking in response to tapping the glabella, the supraorbital region or the cheek bone.

From about the tenth to the fortieth respiration, indications of psychomotor excitement are often discernible. In a few cases this excitement resembles a struggle to escape discomfort caused by the gas. More often the movements strongly suggest reactivation of a pattern connected with an emotional experience; for example, a female patient who previously had been exposed to an attempted rape re-enacted this experience several times while going under CO_2. Flexion at the knee with flexion and abduction of the thighs are frequently seen in female patients, sometimes accompanied by actual masturbation occurring during the period which the patient could not later recall. In one case it occurred during the transitory period of recovery from CO_2 gas effect.

During the first 10 to 40 respirations the lower extremities are often flexed at the hip and knee joints and slightly abducted. There is also a slight flexor hypertonus in the upper extremities and, very frequently, carpal spasm of both hands. Rarely, forced grasping and biting appear after 20 respirations.

When administration of CO_2 was continued beyond this phase, say between 30 and 50 respirations, adversive seizures sometimes appeared but never lasted longer than a few seconds. They consist of conjugate deviation of the eyes and torsion of the whole body in one direction, usually with flexion of the leg and extension of the arm on the side toward which the eyes turned. Manipulation of the head or the body did not always affect the posture, though sometimes tonic extension of both upper and flexion of lower extremities appeared. During these seizures the pupils react to light.

The movements sometimes are restricted to both lower limbs and resemble bicycling. More commonly, there is also a simultaneous alternating change in the tonus of the contralateral upper extremity—the whole picture imitating quadrupedal locomotion. Patients who remember this phase often say that their limbs moved independently of their wills. Some felt thwarted by these impersonalized actions and tried vainly to stop them while others felt that they could stop them but did not have the will to do so.

Some patients moaned or kept on repeating one or several words while these movements were going on, yet they were unable to give any explanation. Only one of them mentioned that he knew that he was repeating meaningless words, that his act was entirely involuntary, and he was amused, wondering what we might think of his talk. Plastic tonus and waxy flexibility were seen in a few instances.

Forced grasping, forced biting, and pouting as a reaction to tapping on the mouth are frequent and are part of the same phase. Usually dilation and rarely contraction of the pupils are then observed although the reaction to light remains prompt.

After 30 to 40 inhalations the plantar reflexes become less active and at 50 to 60 inhalations, the plantar responses disappear and sometimes Babinski's sign can be elicited. In right-handed patients the Babinski sign is more frequent on the right side. Dorsiflexion and fanning of the toes is often followed by spontaneous Babinski position of the big toe.

In some cases, if the treatment was continued beyond to the next stage, say from 60 to 90 or more respirations, the pupils became rigid, the eyes rolled upward, and opisthotonos, tonic extension of all extremities and areflexia ensued. This is the typical picture of decerebration. One patient bit his tongue. These tonic seizures lasted from 30 to 90 seconds after removal of the mask and were followed by stupor for some minutes.

More frequently when the treatment was continued for a sufficiently long time, usually after 60 respirations, there was a tonic-clonic convulsion with the arms flexed and the legs extended, yet the pupils reacted to light and there was no positive Babinski. After these seizures the patients regained consciousness at once.

As we mentioned before, all these motor phenomena are not produced in every case every time, or at the same number of respirations on successive days.

The patients, even if they had had a major clonic or decerebrate seizure, were able to leave the Institute and to return to work within 15 minutes, for the slightly clouded state or confusion which followed some de-

cerebrate fits was gone within that period.

Dorsiflextion of the toes usually ceased in a second or two. Quadrupedization or bicycling movements, which usually ceased when anesthesia deepened, sometimes reappeared for as much as 30 seconds during recovery, so did forced grasping, forced biting and perhaps groping. Except after decerebrate seizures, in 30 to 60 seconds, patients were able to open their eyes and give signs of understanding questions and describe the sensory phenomena experienced during the treatment.

These sensory symptoms were visual, auditory, somaesthetic, and, on two occasions, olfactory. The most common optical symptom is the appearance of a vague reddish light, and small, light or dark spots in the visual field. These spots or points arrange themselves in geometrical patterns, such as squares or circles, and quite often into elaborate figures which occasionally attain the third dimensional depth. The figures appear against a flat surface very close to the subject from two to thirty feet distance, or as if on a dark blue or black horizon. Some of these images are fixed, others move in almost any direction; sometimes they approach the patient directly, sometimes from right to left or from below, upward; some gyrate from the center toward the periphery and the whole picture, by arranging itself into a funnel, a tube, or a tunnel formed of parallel circles, develops a perspective.

In other cases there is a shifting of colors following no discernible law. Yellow, blue, or red colors sometimes persist, at other times blend into one another.

In a few cases, these visual phenomena developed into a complex vision. First, concentric rings of blue and yellow expanded from the center and began to undulate forming a funnel. Then, yellow rings began to wave and the whole scene turned into a seascape of deep blue with an ultramarine sky and vibrating yellow light.

In one case a circle of light became a wheel which grew immense, the patient was the hub of the wheel, the spokes made of figures representing some planning for which he was responsible. This dream, which was fully developed before consciousness was lost, was interesting as it was the same each time and could be stopped at any phase.

Sometimes distant small objects appear in the center of the visual field and start going faster and faster growing as they move outward. Patients occasionally reported macropsias or micropsias or a feeling of being very small. In the majority of the cases these visual phenomena developed smoothly into dreams, often with a strong catathymic component. For example, one of our female patients saw penises.

These dreams are strange or weird in a way that sets them apart like some epileptic auras or ecstatic religious experiences. A patient described it thus: "I had an impression of being in complete understanding and harmony with God. Seemed like an abrupt awakening of truths I should have known but somehow hadn't known before. Failures and successes faded into insignificance and I was part of an all-consuming Love—so strong and intense and beautiful—everything was right—always had been right—only human's thoughts, errors, and miscomprehension of the Plan distorted facts and made the misery, unhappiness that is part of our lives. When I woke, I couldn't describe my sensations while asleep—however, I still felt the effects and also a beautiful calm peace which lasted for several hours. In my dreams —the latter part of it, my thoughts seemed to disconnect from the divine harmony and I have had to struggle to keep from turning the entire experience into a nightmare."

In other dreams some things seemed to be about to appear but the expectation was not realized and the patient retained the same puzzled and anxious tension which he experienced during the dream. Sometimes the dreams appeared in rapid sequence. Patients sometimes reported that they had a great number of dreams but at such speed that they were unable to grasp them. Olfactory and auditory sensations were reported only twice each. The latter being a buzzing sound of an airplane, now in one ear, now in the other.

A tingling sensation in the whole body or in the legs frequently accompanied waking.

The experience of being small was the most picturesque of the disturbances of body scheme, which included a feeling of the extremities being longer or shorter or even swollen.

Discussion

To understand the physiological mechanism of all these phenomena we must keep in mind how the effects known to be produced by carbon dioxide on the function of the isolated nerve or nerve cell will alter actions in various parts of the brain. In this we must note the function of the particular structures, whether they be motor, sensory, or associative; whether they inhibit or facilitate, and we must consider the frequency of stimuli impinging upon their nervous structures.

Carbon dioxide produces, according to Lorente de No, the following changes: 1) increase in the membrane potential; 2) increase in the threshold of stimulation; 3) increased ability to release energy; 4) decrease of fatigability.

Let us consider the consequences of these changes upon structures of the brain.

First of all, according to Eccles' theory, an increased membrane potential, by lowering the excitation in the Golgi Type II cells, would cause, on the lower levels of brain stem and cord, a reversal of many excitors to inhibitors and thereby augment inhibitory functions. "Likewise lowered cortical activity due to deprivation of most incoming sensory impulses would convert excitatory Golgi cells to inhibitors, so bringing about widespread cortical inhibition." This, however, is true only with respect to cortical functions where the incoming stimuli, via the thalamus, are very limited in rate and number. In lower structures whose functions are limited by the fatigability of the nerve cells, i.e., where the stimuli arrive at such a rate that the cells, due to their fatigability, cannot respond to all of them, the increased threshold is of little significance but the increased ability to release energy, and mainly the lessened fatigability of the nerve cells will produce with increased CO_2 increased activity. Hence the two apparently opposite phenomnea, decreased cortical and increased medullary activity.

The altered state of the cortex finds its expression in the modifications of its electrical activity. This is due to increased oxygen supply to, and lowered pH of, the brain, and to some effect of CO_2 upon some of its enzymatic processes. The exact nature of the changes in electric activity during the administration of 5 and 10 per cent carbon dioxide has been analyzed by Gibbs, Williams, and Gibbs. With 30 per cent CO_2 and 70 per cent O_2 used in the cases here reported, slow 3-4 per second high voltage activity appears usually at about 18-19 respirations. This activity subsists for 20-25 seconds beyond the termination of the inhibition when it slowly returns to its former picture.

The physiological phenomena produced by CO_2 are understandable on the above explained basis, so the increased and repetitive blinking upon tapping the glabella or periocular region is a normal reflex whose exaggeration was reported by Angyal in hypoglycemia, Pick's disease, and general paresis —perhaps a release of the mid-brain from cortical inhibition.

The next motor symptom, increased restlessness, expressive psychomotor movements, is a well-known phenomenon in structural or functional impairment of the prefrontal region, areas 9, 10, 12, 13, 14, 24, 25. The subsequent "adversive seizures" may be partly tonic neck reflexes released by quiscence of area 6 and area 8, as Angyal postulated in hypoglycemia.

The "bicycling" movements, accompanied by a just perceptible alternating increase in the tonus of the contralateral upper extremities, are the ontogenetically old movements or quadrupedal locomotion, elaborated in lower structures and released from prefrontal control (Poetzl), as if with the beginning of decortication the old mass action of midbrain and spinal cord appeared.

When we stopped the treatment at the "quadrupedization" level and there was no amnesia, the patients were able to describe how their limbs moved independently of their will. The outstanding psychological characteristic of these conditions is the strangeness produced by the independence of the motor discharges from the will and hence from the patient's self. This phenomenon clearly points to a dissociation of subcortical from cortical functions.

When the inactivity of the cortex extends sufficiently to eliminate the electrical activity of all structures above the mid-brain the described decerebrate fit ensues. (Ward).

The tonic attacks consisting of opisthotonos, tonic extension of all extremities and

accompanied by pupillary areflexia can be produced by interruption of pathways to the suppressor areas of the cortex inhibiting the bulbar reticular formation. When these cortical areas are depressed, the facilitatory activity in the lateral pontile tegmentum will predominate giving tonic extension of all limbs.

The physiological significance of the sensory phenomena during CO_2 treatment is comparatively obscure. The vision of colors, of colored or colorless shapes and forms, spots, geometrical figures, steady and moving, primitive sensations of movements, all are signs of activity either of areas 17, 18, 19, or of the colliculi superiores. Now, the carbon dioxide by increasing the threshold of stimulation tends to decrease the activity of structures with limited input and increase the activity of structures with large input where the activity is limited only by the fatigability of the structure. A fair supposition is, therefore, that the primitive visual sensations are due to an irregular decrease in activity of areas 17, 18 and 19, and perhaps to increase of activity in the colliculi superiores.

In some cases visual symptoms of a different kind, extending well into the recovery phase after the CO_2, were experienced by the patient. Flat surfaces of the walls and the ceiling became undulating, patterns of the ceiling became deeper in relief, some details suddenly became outstanding or features of persons around the patients became sharper. These phenomena were evaluated by the patients as being without emotional context and without the quality of reality. We conceive them to be symptoms of unevenly decreased activity in the occipital visual areas though some of the blurring may well be of peripheral origin.

These primitive visual phenomena are readily invaded by psychic factors, and, therefore, processed into real dreams. Some of these dreams are accompanied by strong pathognomonic emotions, such as the painful tension of one of our stammerers whose returning dream in CO_2 is that he is standing in the middle of a group and people are staring at him and everybody is expecting great things from him. Yet other dreams suggest epileptic aura or they may reach the dignity of the visions of saints.

It is plausible that the dreams that move so fast that the patient remembers only the "rushing" are responsible for the rare disturbance in the sense of time, for "infinitely long time," "infinity," or "long hours," was frequently used in describing these experiences. Similar phenomena occur in hypoglycemia and have been explained by bi-occipital dissociation. (Pisk).

In summary, it seems that our therapeutical administration of CO_2 produces decreased function of inhibitory cortical areas. The balance between inhibitory and facilitatory activity is clearly upset in favor of cortical and subcortical facilitatory functions. Why this is of benefit in any neurosis can only be answered when we have an adequate physiological theory of neuroses.

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Cardiac Complications in Electroshock Therapy

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The psychological depressions occurring in late life provide the most gratifying results with electroconvulsive therapy. Inaccessible or non-responsive for the most part to other methods of psychiatric treatment, these patients obtain rapid symptomatic relief in upwards of 80 per cent of the treated cases. However, in the age group which we are discussing, degenerative somatic disorders are frequently encountered. These complicate the problem of electroshock therapy, and the decision whether to proceed with treatment often demands considerable experience and fine clinical judgment. The following case report emphasizes these difficulties.

Case Report

The patient is a 57 year old housewife who presented herself in a typical state of agitated depression of 2 months' duration. She gave a history of a similar episode 26 years ago, which subsided without special treatment after 9 months. In the interval between these two attacks the patient was irritable, frequently anxious, and constantly pre-occupied with a variety of vague somatic complaints. However, the present depression, starting 2 months ago, represented a distinct change in the clinical picture, from that of a mild, chronic neurosis to a severe incapacitating psychotic depression. She was examined by an internist (J.G.O.) who found that she had a hypertension of 168/100, associated with moderate enlargement of the heart to the left. There was no clinical evidence of heart failure. The EKG tracing (Fig. 1) was normal.

It was felt that she was suitable for electroshock therapy, and on March 2, 1948 she received her first treatment. She was given sodium pentothal, 0.25 gm. intravenously, following which a grand mal seizure was induced with 125 volts at 0.4 seconds. (Rahm machine). Her response to this treatment was in no way unusual. On March 5, 1948 she received her second treatment. She was somewhat apprehensive before this treatment. However, she was readily reassured and once again her reaction was not unusual. On March 9th she received her third and last treatment. Once again she was apprehensive and had to be reassured before she would submit to the treatment. She complained repeatedly of a "weak feeling" in her chest. This was dismissed as a conversion symptom and treatment No. 3 was administered. On awakening from the treatment she repeated the foregoing complaint at once. As she became more thoroughly awake she complained of severe precordial pain and weakness.

On physical examination the heart rate was 160 and the rhythm was grossly irregular. Her blood pressure was 110/80. An EKG (Fig. 2) showed auricular fibrillation with marked ST depressions, and diphasic or inverted T waves, especially in the chest leads. The pain lasted 24 hours and required morphine. The fibrillation stopped after 20 hours and the blood pressure stayed at 110 systolic for 4 days. There was never any fever or elevation of the sedimentation rate. After 2 weeks the blood pressure rose to 150/80. An EKG at that time (Fig. 3) showed sinus rhythm, rate 75, no Q waves, T_1 and T_3 still iso-electric, slight ST depression, T waves diphasic and prominent U waves in all precordial leads. Psychiatrically she is somewhat less depressed than she was prior to treatment.

Comment

Auricular fibrillation as a complication of electroshock therapy has been reported before. Smith, et al.[1] encountered 3 cardiac complications in a series of 312 patients treated with electroshock therapy. One patient, age 55, had a coronary thrombosis after the fifth convulsion. Two other patients, ages 67 and 74 respectively, developed auricular fibrillation following the first convulsion. Both of these patients responded well to rest and quinidine. None of these patients had any clinical or EKG evidence of heart disease prior to treatment. Electroshock therapy was stopped when these complications developed. Hayman[2] described a 48 year old man with EKG evidence of mild myocardial degeneration, who developed auricular

fibrillation after the first convulsion. He was placed on quinidine, and 36 hours later the cardiac rhythm was normal. Six months later electroshock therapy was instituted again because of the severity of his symptoms. This time he received quinidine sulfate, 0.8 gm. daily for one week preceding the treatment and throughout the course of treatment. He received 9 treatments altogether without further cardiac complications. Moore[3] reports the case of a 52 year old woman who was a diabetic and was known to have had several myocardial infarctions due to disease of the coronary arteries prior to treatment. She was given electroshock therapy because of a severe depression. Substernal pain developed after the third treatment and an EKG revealed evidence of a fresh infarction. The patient died suddenly four weeks after the third treatment.

The violence of the muscular movements which occur during an induced convulsion and the prolonged period of apnea and cyanosis which are frequently seen after the convulsion, are striking and at times disturbing to watch, so much so that one is almost surprised at the wide margin of safety which actually exists with the treatment. Thus, it is stated by Moore,[3] "In a series of 2181 intramural and extramural patients receiving electric convulsion treatment many presented conditions hitherto considered contraindication to convulsive shock therapy, such as cardiovascular disease with and without hypertension, pulmonary tuberculosis, pulmonary fibrosis, skeletal disorders, cerebral arterio-sclerosis, general arteriosclerosis, advanced age and organic disease of the central nervous system in the form of syphilitic meningo-encephalitis. With the exception of 1 death, that of a patient with known severe cardiac disease occurring 4 weeks after a course of 3 treatments, there were no complications of moment, and the results from the psychiatric standpoint were gratifying. A second death occurred in a man, aged 44. who offered no contraindications to treatment."

Referring to the problem of cardiovascular disease specifically, Kalinowsky and Hoch[4] state, "Study of these exceptional cases (cardiovascular death following electroshock therapy) confirms our impression that cardiac complications are so rare and unpredictable that application of ECT (electroconvulsive therapy) should not be excluded even though electrocardiographic changes reveal a diseased heart."

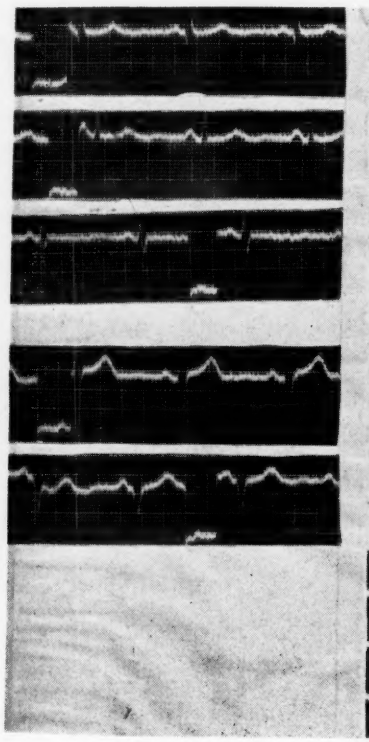

FIGURE 1

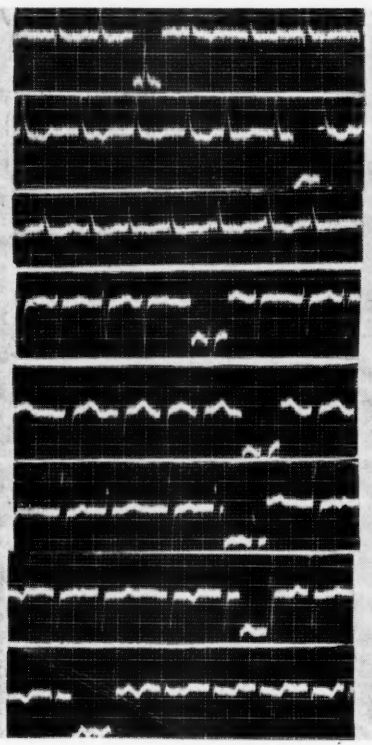

FIGURE 2

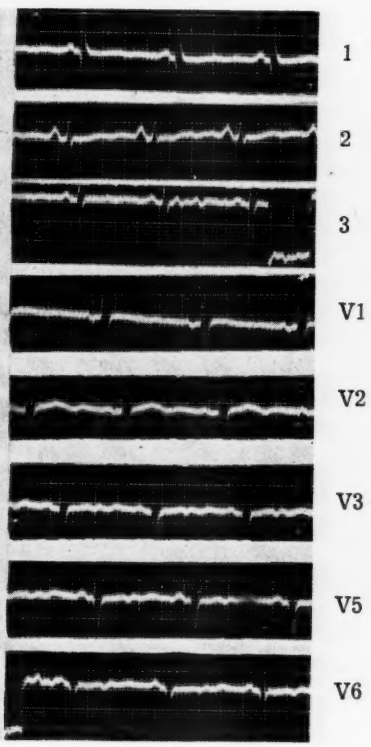

FIGURE 3

Infrequent though these cardiac complications may be, it is nevertheless incumbent on the physician to consider the problem of prophylaxis. In reviewing our case it is striking that the patient complained of precordial discomfort prior to the third treatment. Because the EKG was normal six days before, we were inclined to overlook this complaint. It is clear that a normal EKG at the beginning of treatment does not absolve the physician from the need for continued alertness. It will be the better part of wisdom to repeat detailed cardiac studies during a course of electroshock treatments, whenever a doubt arises.

In a very illuminating analysis of the dynamics of heart action in electroshock therapy, Altschule and Tillotson[5] bring out that the work of the heart is actually decreased *during* the convulsion. After the convulsion the cardiac work increases and it is during this postconvulsive period that myocardial injury probably occurs. They state, "The rush of blood from the periphery into the right auricle and great veins of the thorax during the postconvulsive period probably accounts for the cardiac arrhythmias that may occur at that time.... The arrhythmias are vagal in type and are apparently consequent to reflexes activated by sudden distention of the auricle and great thoracic veins." They propose to diminish the postconvulsive strain upon the heart by eliminating the convulsive movements through the use of d-tubocurarine. Other curare preparations are known to increase to a dangerous degree the vagal impulses that influence cardiac rhythm.[5,6] Altschule and Tillotson state that these exaggerated vagal effects are the result of impurities in the curare and do not occur when one uses d-tubocurarine. In any case, the use of curare preparations demands skill and experience and should not be employed by those not properly trained to do so.

Since the postconvulsive cardiac disturbances seem to be the result of vagal hyperactivity[5-8] a simpler approach to the problem of prophylaxis seems to lie in the use of atropine prior to the treatment, as suggested by Bellet.[6] We now atropinize all our elderly patients prior to treatment whether or not evidence of cardiac damage exists. The use of an airway as suggested by Brody[9] is another measure which we now use routinely, which undoubtedly diminishes the extent of the oxygen debt which develops during the convulsion and facilitates the restoration of the oxygen balance following the convulsion, thereby diminishing the amount of postconvulsive work demanded of the heart.

Summary and Conclusions

1) A case of coronary insufficiency with auricular fibrillation following electroshock therapy is presented.

2) Methods are proposed in the prophylaxis of this complication. These are:

a) Repeated clinical and laboratory examination of the heart during the course of electroshock treatment.

b) Routine atropinization of elderly patients prior to treatment.

c) The use of an airway during the treatment.

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Some Psychiatric Aspects of Cardiovascular Disease

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The completeness of study of a patient is vital to medical care. Increasing emphasis on multiple and overlapping etiologies is essential to the understanding of the importance of psychological mechanisms and the usefulness of psychotherapy in medical conditions. Cobb[1] offers a very constructive approach in dividing all illness according to etiology into four principal groups—histogenic, chemogenic, genogenic and psychogenic. He believes that every case or group of cases should be listed under these different etiologies with varying emphasis given to each factor. For a consideration of the psychological factors in cardiovascular disease patients may be divided into four groups:

1. *Cases in which cardiovascular disease itself may be psychogenic.* Essential hypertension, for example, is often considered in this group. The monograph of Binger and his group[2] correlates the personality traits of dependency, submissiveness coupled with stubborness, suppression of hostility and similar traits with arterial hypertension. Nevertheless, studies in this field are incomplete, and adequate control studies are not available.

2. *Cases in which known cardiac disease is one of the stresses in a complex life situation.* In such cases the therapeutic indication is clearly to treat the heart disease in its own right and to manage the situation with psychotherapy also in its own right. Especially in cases where the prognosis is not good, and where there is relatively little to be accomplished by drugs, emphasis on psychotherapy and on the problems in the life situation will help to combat the actual fear and apprehension in regard to the disease itself.

3. *Cases in which the patient's anxiety is based entirely on cardiac disease.* In cases in which the prognosis is good, the treatment of the anxiety consists of simple reassurance on the part of the physician on the basis of the facts which he can give the patient as a result of his examinations. One of the outstanding complaints which patients make to psychiatrists about doctors whom they have previously seen is that they do not receive sufficient explanation. Many times this appears to be a valid complaint. A reason often given by doctors is the limitation of time. However, in view of the fact that patients are becoming better educated, and have an insistence on knowing reasons, it is worth considering that perhaps it does not take any more time to give an adequate interpretation than it does to avoid making the interpretation. Furthermore, unless the time is taken to interpret to the patient the meaning of his symptoms the rest of the study of the case has been wasted. The old simple authoritarian methods of the physician are really based on the concept of an uneducated populace.

In those cases in which the prognosis is bad it is obviously impossible to reassure the patient on the basis of the facts of the examination because these discoveries contain the pessimism which the doctor wishes to avoid. In such cases, there is more need than ever to work with the insecurity associated with personal relationships and the *normal* amount of anxiety which people have. This normal amount of anxiety would not require any treatment whatsoever were the patient not carrying the added stress of his physical illness. One of the principal psychological problems which enters into such cases is how the patient should face death and what is the role of the physician in helping him. One of the rather simple things which he can do is to discover through a brief survey of the life history what the patient's habitual mode of meeting problems is. If he is a person who always faces things squarely then the imminence of death should be faced in the same manner. On the other hand, if he is a person who has built a life pattern of not facing problems directly it may be best to continue this practice in a critical situation. A systematic study of the development of the patient's personality is necessary for

the physician of today whereas the practitioner of yesterday acquired this knowledge through his prolonged, intimate contact with the patient.

4. *Cases in which cardiac symptoms are only the presenting signs of a general emotional disturbance.* Palpitation, shortness of breath, and pain in the precordium were described many years ago by Herz under the term of phrenocardia. Since then the nomenclature of this disease has included neurocirculatory asthenia, disordered action of the heart, soldier's heart, effort syndrome, etc. At any rate, such clinical descriptions appear to overlap the group of cases diagnosed as anxiety state with cardiac manifestations. Where psychiatrists and internists have worked closely together despite differences in approach, they have usually been able to agree on the individual diagnosis.

TECHNIQUE OF BRIEF PSYCHOTHERAPY: In the following abbreviated description it is sought to give the exact method of dealing with a patient in this latter group on the basis of four interviews.

First Interview

Patient is a 50 year old white male, had never been seriously ill previously. Eight months before he was first seen, he noted the gradual onset of epigastric and precordial pain, anxiety, tension, loss of weight, loss of appetite, and diminution of sexual desire. He had had consultations with three different doctors and had been told by all of them that the results of physical examination and electrocardiography were negative. The most important information in his background was that he had heavy responsibilities as an executive in a large organization. He had lived completely outside himself for the past thirty years, had never had a vacation, and had never paid any attention to himself. He presented this question: "Doctor, they have told me there is no physical disease. Why, then, do I have the symptoms?" The symptoms were explained to him on the basis of stress, and he was told how external problems could affect the functioning of blood vessels, muscles, gastric secretion and the like.

There are four important steps in the proper explanation of somatic disturbances resulting from emotional stress enumerated as follows:

1. Through the use of examples it can usually be demonstrated that an acute emotionally charged situation may produce effects on the body. The examples include that of the woman who vomits or faints upon seeing a bloody accident or the student who has an increased pulse rate or increased frequency of urination before an important examination. Patients may be interested in systematic or experimental observations that have been made. (See Fig. 1). They may be told how the blood pressure of normal people, and it is important to emphasize *normal,*

FIGURE 1

EMOTIONALLY INDUCED CHANGES IN BLOOD PRESSURE

Author	*No. of Subjects*	*Situation*	*B. P. (Ave.) Experimental*	*Control B. P. (Ave.)*
Maranon	10	Flight	179/96	
Tigerstedt	13	Examination	163	133
Diringshofen, Belonoschkin	12 new pilots	first flight	147/84	126/72
Belonoschkin	16 old pilots	Routine flight	142/75	110/70
Morris	26	Surgical O.P.D. —Emergency Room	134/83	112/70
	17 C.A.A. Student	Qualifying Physical	123/74	113/68
		First flight	137/84	113/68
		Other Stress*	132/82	113/68

*Before first "solo," "spiral," "spin," or link trainer.

will be significantly raised by an important physical examination, in patients before surgical procedures, in pilots before their first flight or their first solo flight.[3] Work like Jacobsen's[4] showing electrically measurable increases in muscle tension following the thought of muscular movement can be quoted and simply diagrammed for the patient.

2. The next step is to explain how these outer experiences enter through the five senses, register their effects on the central nervous system which effects then are transmitted to various parts of the body. Here it is more important that the explanation be plausible and suited to the intellectual level or the interests of the patient than that it be entirely accurate scientifically. If possible, of course, the correct scientific explanation should be given. The dilitation of extracerebral vessels as the mechanism of migraine is a well-known instance. Purely from practical experience the interpretation of pains in most any part of the body as due to mildly increased but prolonged contractions of muscle is most readily understood and accepted.

3. The third important phase of the explanation is the translation of acute emotional stress into terms of chronic emotional difficulty. It is easy to understand the effect of acute emotional strain on the body, but it must show, perhaps again through a simple paper and pencil diagram, how there is a cumulative effect from chronic irritations and stresses which can build up to equal the same intensity as that of a single acute stressful situation.

4. The last important step is to explain the localization of the pain. Patients very frequently ask this question: "I understand it in general, Doctor, but why is it around my heart?" Such localizations can usually be understood either in terms of a special fear relating to that part of the body, either a pre-existence or co-existence of disease in that part from a different cause, sometimes by purely accidental association or coincidence in circumstance, or by the theory that certain organs or organ systems are hereditarily inferior.

Second Interview

One week later the patient still presented doubts and was unable to understand the difference between the words real and imaginary. Such linguistic confusion is a major obstacle to be overcome in psychotherapy. It was explained that by real is meant that there is a physiological disturbance which is mild but prolonged or that owing to anxiety or fear there is an increased attention to normal bodily sensations which under other circumstances do not impinge on consciousness at all. In the presence of these renewed doubts an immediate careful physical and neurological examination was done. The importance of this *timing* is emphasized. Examination should not always be done routinely but, as in this case, can sometimes be related definitely to the need and stage of treatment. At this interview he regarded himself as improved so that he was able to wait in the waiting room for 15 or 20 minutes without the apprehension which he had experienced before. A further attack on his problem was discussed with him in terms of two alternatives—either through the relief of personal emotional problems, or the relief of stress due to overwork and fatigue. He could readily have been told to take a vacation but this would not be as effective as giving him a choice, and would have overlooked the possibility that his more emergent need could have been to discuss personal problems. As it happened he decided to take a month's vacation.

Third Interview

Three months later he reported considerable improvement. He still had many of the old symptoms but to use his language, "They do not bother me as much. They frequently wear off during the day, and often I feel like my old self." For the third time, explanation of the effect of emotional stress on the body was given to him. It is important that such explanations be repeated patiently if they are to be effective because people are normally somewhat resistant to them. He was justified in having his present overconcern about himself in view of the fact that his entire previous life had been marked by underconcern for himself. For the first time he spoke of a "fear complex." He was immediately given the general interpretation that this was probably related to a concern about his body based on physiological changes at the climacteric. He asked

if he should have a physical check-up after six months and was told that it would be all right but that there was no urgent indication and that it was believed that the results would be negative. He asked if he should take benzedrine and this was answered by asking him whether he might not prefer to get stimulation from his own resources rather than from a drug. He stated that he preferred the former.

Fourth Interview

Four months later the patient's symptoms had decrease dand had localized chiefly to the epigastrium and the precordium. For the fourth time and at the patient's request, an explanation of the physiological basis of his symptoms was given. It now seemed to be easier for him to accept. Inquiry made by the therapist into the state of the patient's fear elicited the reply that he had had an increase of these sensations in the precordium following his reading a newspaper item that a doctor friend of his had suddenly dropped dead from heart disease. The therapist said that such a clue meant that either the patient feared the general idea of death, or else that he had a special fear of heart disease. He replied that it was the latter. There were no members of his family who had had heart disease. Hence this was not the basis for his apprehension. He was then asked what conclusions he had drawn from his reading in the newspaper and in popular publications. He said that he had observed that heart disease, and especially sudden death, occurred in people like doctors who had heavy responsibilities and then added that he was just that sort of person himself. After this statement he said, "That must be it. We've hit it right on the button." The matter of popular education as a source of anxiety was then elaborated for him. A classical example of this is the occurrence of numerous feeding problems following the education of the public on nutrition. The patient was then told that his idea as to what sort of people dropped dead from heart disease was essentially correct. It was further indicated to him that he was left with a vital decision: Whether to continue his life exactly as it had been, taking risks and letting the chips fall where they would, or to curtail and modify his responsibilities in order to run proportionately less risk. It was emphasized that this decision was an entirely personal matter and that no one else really had a right to tell him what to do in this respect.

A follow-up on this patient a little more than a year after the original contact indicated that he had continued to improve. He has gained weight and is not depressed. At this time he had only minimal symptoms and stated that he had reached the decision to modify his work. It should be repeated that this patient could have been ordered to curtail his work in the first place, but probably would not have done so and thus the aim of the treatment would have been completely defeated.

The kind of psychotherapy employed above should be a part of every doctor's equipment and need not belong to any specialty.

Summary

Emotional stress may be one of multiple etiological factors in producing a disease or it may be the principal or sole factor. Whether or not hypertension and similar conditions are psychogenic, there is a wide application for simple psychotherapy in patients in which cardiac disease is one of the stresses in a complex life situation, in patients where the anxiety results from the cardiac disease and especially in those cases where the cardiac symptoms are only the presenting signs of a general emotional problem. A brief, psychotherapeutic treatment is described in one case with special emphasis on the step-by-step explanation of the influence of external events on internal bodily mechanisms.

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Attempted Suicide: A Ten Year Survey

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Almost every practitioner is faced at one time or another with the problem of a suicidal attempt. It is of particular importance when working with nervous or mentally ill patients, since successful attempts at suicide comprise a significant cause of death. In some years, the total number of individuals inflicting death on themselves has reached 20,000 in this country alone.[1] During the recent war years, when suicides were at the lowest point on record, 13,000 persons annually took their own lives and many more made unsuccessful attempts to do so. Since the war ended, suicides again are on the increase.

The motives for suicide are not always easy to determine. Such seemingly helpful leads as suicide notes often tend to conceal the real reasons, rather than reveal them. We are able, however, to find factors which appear with a fair degree of frequency in the background of those individuals who attempt to take their own life. Raphael[2] described the poorly integrated personality of younger individuals who attempt suicide as shy, self-conscious, over-sensitive, inclined to worry, infantile in their attitude and delicately balanced emotionally. They were also noted to be poorly socialized, with few recreational outlets and lacking in initiative.

Wall[3] points out that we must distinguish the symptoms of depression, hypochondriasis, and insomnia which are seen in a lesser degree in patients who are essentially neurotic and who may be treated successfully in clinics and doctor's offices from the more severe forms of these symptoms seen in potentially suicidal patients. In this latter group, the depression is persistent and often associated with excessive tension and agitation, with feelings of guilt, self-depreciation and self-accusation. The patient does not obtain as much relief from verbal catharsis as in a milder psychiatric disorder. Rather than the widespread and shifting hypochondriasis of the psychoneurotic patient, the potentially suicidal person is more likely to show a delusional type of hypochondriasis, often with one organ or system as the subject of constant concern. The complaint of insomnia is found associated with genuine dread and distress, and the patient is sure that the sleep loss is causing irreparable damage. Warning signs also observed in potentially suicidal patients studied by Wall were a fear of losing control and of hurting others or themselves, previous attempts to injure themselves, and suicidal preoccupation and talk.

Various theories have been expressed as to the underlying personality disturbance that leads to suicidal attempts in the face of environmental stresses. Zilboorg[4] compared the psychology of the primitive races with that of suicidal patients in regard to self-destruction. He stated that the underlying mechanism in the primitive involved the entrance into a hedonistic eternity and joining with the dead loved object, with whom the individual had identified himself, as a means of achieving a fancied immortality. He also gave other unconscious mechanisms such as regression, oral sadism, anal traits, the desire to return to the mother's womb, incest guilt, the spite reaction, the sense of being wronged, and the turning of the thwarted aggression upon one's self as possible factors.

Bender and Schilder[5] believed that an attempt to escape is the child's reaction to an unbearable situation which is a result of a deprivation of love. Aggressiveness is built up which is directed primarily against those who deny the love, and, under the influence of guilt feelings, these aggressive tendencies are turned inward and suicide results. Here the suicidal attempt is also a punishment against the surroundings and an attempt to obtain a greater amount of love.

Jelliffe[6] speaks of the Freudian concept of the death instinct as part of the life instinct, with death coinciding with the act of copulation in some of the lower animals.

Lewis[7] states that suicide, as the term is generally understood, is one of the profound pathologic situations in which the regressive

parts totally destroy the adaptation. Thus, attempted or successful suicide is a pathological mental illness of the order of a psychosis.

Karl Menninger, in his book *Man Against Himself*,[8] relates the suicidal tendencies of chronic alcoholics and feels that some disturbed individuals achieve self-destruction by an irresistible addiction to repeated, excessive drinking of alcohol. In speaking of their spasmodic attempts to save themselves, which he feels are usually bogus, he states that the reason does not lie in some wicked perverseness, but in the deep hopelessness and despair from which every alcoholic secretly suffers. He reports patients who frequently start out with conscious suicidal intentions and end up by getting drunk, or those who become intoxicated first in order to get the courage to make a suicidal attempt, as if this was a less certain death than shooting. Many patients treated for alcohol addiction are preoccupied in their sober moments with thoughts of self-destruction, sometimes associated with a realization of their own unworthiness, sinfulness and incompetance. Thus, Menninger feels that addiction to alcohol may be thought of not as a disease but as a suicidal flight from disease—a disasterous attempt at self-cure of an unseen inner conflict, aggravated but not primarily caused by external conflict.

If we turn to the more immediate precipitating causes of suicidal attempts, we find the existence of certain fairly constant socio-economic patterns. It is seen that the suicide rate tends to vary inversely with business conditions, suggesting that financial difficulties may be a frequent motive for suicide. This economic motive has been decreasing in recent years, however, and according to recent data published by the Police Department of Detroit, Michigan,[1] less than 2 per cent of the suicides there during 1942-43 were attributed to financial difficulties. Their statistics also showed the characteristic differences according to sex. Among males, ill health was the primary cause, being present in 40 per cent of all attempts, successful or not. In this group, 30 per cent were due to domestic difficulties and only 4 per cent to disappointments in love. Among women, domestic troubles accounted for 50 per cent, ill health 20 per cent, and love affairs 10 per cent. In both sexes, general despondency and the death or illness of others is responsible for a number of suicides annually. In relating the motive to the success of the attempt, the Detroit survey reveals that the highest proportion of successful attempts in each sex is among those who attempt suicide because of ill health. Domestic troubles and love affairs show a much lower proportion of successes, especially among females. In fact, of 114 attempts attributed to love affairs in the two year period, only one succeeded. Thus, it might appear that unhappy lovers do not choose efficient methods of taking their lives, either because they are too disturbed, or more likely, because they simply wished to create a dramatic situation.

Minogue[9] reported a study of 634 Australian veterans of World War I who committed suicide from 1914-1937 and concluded that restless, unhappy soldiers craved the excitement of the cities, where their loneliness was intensified and their struggle for existence became more acute. Thus, no matter what physical or psychological factors may predispose a patient to suicide, intense loneliness often precipitates the final act. Forty per cent of this group were also heavy alcoholics, which again suggests that the victims first sought escape in alcohol and, that failing, committed suicide. Of the group reported, 20.8 per cent had been wounded in the fighting, 34.5 per cent had business and financial worries, and 30 per cent had domestic difficulties.

The subject of this survey is 381 patients observed in Ancker Hospital, St. Paul, Minnesota from 1937 to 1946 because of suicidal attempts. It was found that females outnumbered males in this group 226 to 155. Among the male patients, 68 or 43.8 per cent showed domestic difficulties as a major precipitating factor. Economic and financial worries were present predominantly in 38 cases or 24.5 per cent, and ill health was found to be the primary cause of concern in 12 histories or 7.7 per cent of the males attempting suicide. Among the females, 157 or 69.5 per cent gave disturbed domestic or family affairs as the cause, 24 or 10.6 per cent were mainly concerned with economic troubles, and only 3 or 1.3 per cent of the women were driven to attempt suicide by ill

health.

Alcoholism was a very prominant factor. Eighty-six of the men or 55.5 per cent showed evidence of alcoholism, and 38 of these or 24.5 per cent of the males gave a history of chronic alcoholism, many of these with previous admissions for acute alcoholism or delirium tremens. Among the females, a total of 72 or 31.7 per cent indulged persistently in the use of alcohol, and 22 of these or 9.7 per cent of the females were diagnosed as chronic alcoholics. Many of the patients in this study were under the influence of alcohol when they made their attempt at suicide.

Concerning marital status in our group, we find:

TABLE 1

MARITAL STATUS

	Males		*Females*	
Married	68	43.8%	125	55.3%
Single	43	27.7%	48	21.2%
Separated	20	12.9%	21	9.3%
Divorced	13	8.4%	20	8.8%
Widowed	10	6.5%	10	4.4%

The pattern of marital adjustment appears generally the same in both sexes.

Of the patients, 50.9 per cent were reported to be Protestant in religion, 45.1 per cent Catholic, and 2.4 per cent Jewish. Only 6 cases or 1.5 per cent reported no religious affiliation.

The method by which the suicide is attempted or accomplished is of interest. A study by Minogue[9] found that poison and shooting each accounted for about one quarter of the total successful suicides, with cutting, drowning, gas and hanging respectively the other prominant methods. Siewers and Davidoff[10] reported that mental hospital patients gave more advance notice of their intentions and their methods were more bizarre. They showed a greater tendency to jump or use a combination of methods, but were less inclined to use iodine, phenol, illuminating gas, gun or cutting of vital areas. These authors also stated that neurotics and non-psychotic psychopaths, in making dramatic gestures, were often apt to ingest iodine.

Table 2 is a compilation of the methods and frequency with which they were used by the patients reported in this study. It must be kept in mind that many of our patients probably were not seriously considering suicide, but had other motives for making such an attempt.

We see in this group that the males tend to use the more violent methods of self-destruction such as lacerating the neck or wrists, shooting, or hanging. The women, on the other hand, seem to prefer the less brutal means such as poison, which included sleeping medications, iodine, or lysol; gas, especially illuminating gas, and, for the more impulsive, jumping from heights.

In a study mentioned previously,[9] Minogue reported that 4.9 per cent of his group had been patients in mental hospitals or clinics. He found also that the majority of these subjects committed suicide within six months of their discharge from such a hospital.

TABLE 2

METHOD EMPLOYED

Method	*Males*		*Females*		*Total*	
Poison	64	(33.2%)	149	(52.7%)	213	(44.7%)
Gas	36	(18.7%)	74	(26.1%)	110	(23.1%)
Lacerations	55	(28.5%)	32	(11.3%)	87	(18.3%)
Jumping	10	(5.2%)	17	(6.0%)	27	(5.7%)
Hanging	14	(7.3%)	4	(1.4%)	18	(3.8%)
Firearms	10	(5.2%)	3	(1.1%)	13	(2.7%)
Drowning	2	(1.0%)	2	(0.7%)	4	(0.8%)
Fire	2	(1.0%)	0		2	(0.4%)
Miscellaneous	0		2	(0.7%)	2	(0.4%)
	193		283		476	

It often appears that there is almost a familial tendency to commit suicide, but the reasons for this are not clearly understood. Occasionally a family background of suicide seems to lead to an obsession which finally results in a compulsive suicidal attempt.

A survey by the Metropolitan Insurance Company[11] found that it was unusual for a true psychoneurotic to make a genuine attempt at suicide, and even more unlikely for one in this group to complete the act, but it was found that not uncommonly psychoneurotics threatened suicide. It also was noted that in the initial phase of some psychoses such as schizophrenia, involutional melancholia, general paresis, and cerebral arteriosclerosis when the diagnosis is difficult and the patient is easily mistaken for a neurotic, the suicidal tendency is quite persistent and often carried to completion.

In the group reported in this study, 68 of the cases revealed a record of a previous suicidal attempt. Thirty-one of these were males who made a total of 43 previous attempts, half of these within one year. Thirty-seven female patients reported a total of 62 previous attempts, with the mean time elapsed since the previous attempt slightly over one year. One quarter of our total cases were found to have a previous psychiatric diagnosis, with a previous committment to a state mental institution recorded in a number of them. Thirty-nine patients had had a diagnosis of psychosis, 38 were previously diagnosed psychoneurosis, and 17 others had been previously recognized as abnormal. Included in this latter group were such defects as psychopathic personality and feeblemindedness.

A few symptomatic complaints were found to appear frequently in our group. A majority of both the males and females reported depressed feelings at the time of their attempt. Also mentioned were despondency, nervousness, excessive worrying, and insomnia. None of these symptoms were found frequently enough, however, to be considered valuable in predicting suicidal attempts.

In about half of the cases reported in this study, a diagnosis of mental illness was made. This is in addition to the frequent diagnosis of chronic and acute alcoholism, as mentioned previously (See Table 3).

Franks[12] reported that, excluding patients who were severely ill mentally, most of the patients were pleased that their attempt had failed and, after a short course of psychotherapy, were able to develop a more stable attitude toward the future. Wall[3] feels that electric shock may be of value in decreasing the patient's desire for self-destruction, and states that some patients may interpret the treatment as punishment, thus fulfilling the need for punishment and satisfying their guilt feelings. He also noted that every effort should be made to establish a strong transference, even though the patients cannot be depended upon to respond with confidence and complete trust in the therapist. With removal from the stress and strain of the home environment to the restful and reassuring hospital regime, most patients begin to improve. He also found that the best treatment included increased activities, which, in

TABLE 3
DIAGNOSIS

Diagnosis	*Males*	*Females*	*Total*
NEUROSIS	18	39	57
Reactive depression	5	21	26
Simple depression	8	12	26
Anxiety state	2	4	6
Type unspecified	3	2	5
PSYCHOSIS	32	60	92
Involutional melancholia	5	26	31
Schizophrenia	9	15	24
Manic-depression	6	10	16
Senile psychosis	4	6	10
Paranoia	1	2	3
Alcoholic psychosis	1	0	1
Mixed psychosis	0	1	1
Undetermined psychosis	6	0	6
PSYCHOPATHIC PERSONALITY	5	11	16
FEEBLEMINDEDNESS	2	2	4

turn, meant increased risks, but the restoration of confidence is a most important part of the recovery of these patients.

Only a minority of our group attempted suicide a second time after failing in the first attempt, raising some question as to the sincerity of their intentions. Also, in considering the 10 cases in our study in which the attempt was successful, we find it hard to doubt these patients' goals. One, the only female, who had previously been diagnosed a psychopathic personality, achieved suicide with seconal on her second attempt and under the influence of alcohol. The other nine, all males, had not a previous psychiatric diagnosis among them, with the exception of one who had delirium tremens. Only two were alcoholic at the time of their attempts, and only two had made previous attempts, one by hanging and the other by lacerating his wrists and throat. The nine men achieved death by cutting wrists or throat in 3 cases, a bullet fired into the head in two instances poisoning by arsenic and phosphorus in two others, hanging by the neck in one case; illuminating gas was successful in only one instance, despite the frequency with which this is resorted to.

Surely one cannot say of these efforts that suicide was the untimely result of a dramatic gesture. All of the other persons, by indicating their intentions where they did not have the courage or desire to carry their act to completion, must be realized to have conflicts and definite emotional problems and certainly deserve prompt and adequate treatment for their illness.

Franks offers a number of suggestions which might help prevent suicides. Among these were teaching certain groups among the public and professions an appreciation for suicidal danger signals, abolishing the stigma attached to the act, minimizing publicity, encouraging the writers of medical books to devote more space to information on suicide, encourage any factors that will build up the solidarity of the group in which the individual finds himself, establishment of a fixed regular daily routine for the unsettled person which will bring satisfaction and contentment to him, and the establishment of clinics to which such distressed persons may come for help and guidance.

Summary

Suicidal persons present a significant problem in the general and specialized practice of medicine, particularly psychiatry. The number of deaths from suicide in this country annually comprise an important factor in vital statistics. A number of symptoms and personality factors which have been helpful in anticipating suicidal trends in patients are reported. Also, a survey of the literature concerning theories of the underlying personality defects in these people is given. Statistics relating to motives and methods as reported by other authors are given, along with similar figures from the survey reported here. In the group of 381 suicidal patients observed in a general hospital, who were the subject of this study, domestic and family difficulties were found to be the major precipitating cause for suicidal attempts, with economic and financial worries, and ill health frequently found in males as motives also. Alcoholism was found in over half the men and nearly a third of the females. A quarter of the male suicidal patients gave a previous history of chronic alcoholism. It would appear that an underlying personality disturbance which finally was brought to medical attention through an attempt at self-destruction had been previously evidenced for a prolonged length of time by the refuge in alcohol. Figures concerning marital and religious status are given. We find that the more dramatic and relatively harmless methods are resorted to in the suicidal attempt more frequently by women, whereas males were found to use the more brutal and effective methods. One sixth of the persons in this study had a record of a total of 105 previous attempts at suicide, and one fourth of the patients were found to have a previous diagnosis of mental illness, 39 of these having been considered psychotic. No subjective symptoms were found consistently enough to be considered of prognostic value in potentially suicidal patients, and as yet we are unable to differentiate between suicidal gestures and genuine suicidal attempts. Of the whole group, 44 per cent of the cases were given a final psychiatric diagnosis, and over half of these were considered psychotic. However, suicidal trends appear to be more an indication of an emotional

disturbance than a desire to actually do away with oneself, since the great majority of these cases used innocuous materials and did not greatly endanger their lives, while those few who were evidently more sincere in their efforts toward self-destruction were able to end their lives quite efficiently.

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*The Influence of Hypnosis on the Tremor of Parkinson's Disease**

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Introduction

Patients with Parkinson's disease may be extremely incapacitated with the tremor and muscle rigidity of this disease. Yet during sleep they lose this tremor and relax. Hypnosis resembles sleep in many respects, and the subject is able to become very relaxed. The question arose whether hypnosis would have any effect on the tremor of Parkinson's disease. Therefore this experiment was attempted and the results are herein recorded.

Technique

Four patients with Parkinson's disease were individually subjected to from three to four hours of hypnosis prior to recording their myograms and encephalograms. Hypnosis was induced repeatedly by the following procedure. Lying on his back in a relaxed position, the patient was asked to stare fixedly at a small bright light in such a manner that his gaze was slightly below and peripheral to the normal line of vision. Suggestion of drowsiness, relaxation of muscles, and heaviness of the eye-lids was made until the patient could no longer open his eyes and the extremities were relaxed as tested by allowing them to fall upon the bed.

After a total of from three to four hours of hypnosis spaced over a period of four to five days, electroencephalograms were made. Monopolar recordings were taken from the frontal, parietal, occipital, and temporal areas of the brain. The recordings were made in the waking state and in the hypnotic state. Electromyograms and electroencephalograms were made simultaneously.

A two-channel instrument was used, recording with a heated stylus writing on colored waxed paper. Twenty-seven gauge needle electrodes were used in the scalp and in the ears, the latter being the indifferent electrodes. The electromyogram was taken by placing two silver cup electrodes in contact with the skin of the middle third of the affected arm over the deltoid and biceps muscles. Electrode jelly was used in the cup electrodes to make contact and the electrodes were held down firmly with adhesive tape.

Case Reports

Case 1: This patient, a fifty year-old white, married male, prior to his illness, held an

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executive position. Patient had "grippe" in 1916 and in 1940 he was ill two weeks with "flu". He did not have somnolence with either illness. He returned to work and on March 15, 1941 he developed tremor of his left leg which became progressively worse with increasing deep continuous pain in the involved extremities. Pain is now his chief complaint.

Mental examination disclosed this patient to be moderately depressed over his illness, but he is not retarded. He has an obsession that brain surgery may be tried and that a venereal disease is causing his illness. His sensorium is intact and memory, speech, writing and general knowledge are unimpaired.

Physical examination showed a well developed but emaciated male of stated age with a fine tremor of his left extremities at rest, more pronounced in the upper extremity. He is lacking in facial expression but he exhibits no facial paralysis. He has a spastic propulsive gait and an unwinking stare. The deep reflexes are exaggerated but equal. Cogwheel rigidity is noted in the left extremities. A fine tremor of the tongue is noted.

No abnormalities were found in the laboratory examination which includes chest x-ray, blood count, urinalysis, blood Wassermann and spinal fluid examination. At the time of this experiment, the patient was receiving 100,000 units vitamin A, three B-complex capsules and 7.5 mgm. of atropine sulphate daily.

Case 2: This patient, a forty-nine year-old white, single male, prior to his illness, had been a miner. He had influenza in 1932 and about two years later developed tremors of hands, legs and tongue, which became progressively worse. He was hospitalized on May 22, 1945.

Mental examination disclosed the patient to be somewhat euphoric regarding his illness. No abnormal thought content was elicited. Speech is difficult and stuttering, but replies are appropriate. Tremor prevents his writing but his general knowledge is good and memory is unimpaired.

Physical examination showed a fairly well developed but emaciated male, apparently five years older than his actual age. He is confined to bed but he is in no apparent distress. There is a fine four to five per second tremor of all four extremities and evidence of drooling from the mouth. Metacarpal phalangeal joints of the right hand are ankylosed as well as the metatarsal phalangeal joints of the right foot. There is muscular atrophy of extremities most pronounced on the right. Rigidity is also most pronounced on the right. His facial expression is fixed but he has no facial paralysis. His stare is unwinking.

No abnormalities were found in the laboratory examination which included chest x-ray, blood count, urinalysis and blood Kahn.

At the time of this experiment the patient was receiving 30 mgm. thiamin chloride, 100 mgm. nicotinic acid, two vitamin B-complex capsules and 0.72 grams of "rabellon" daily.

Case 3: This patient, a fifty year-old white, single male had worked as a laborer. In November, 1919 he developed what was diagnosed as encephalitis lethargica. Three months later he recovered and returned to work. In June, 1921 he quit work because of drowsiness. He has been hospitalized intermittently since 1923.

Mental examination showed the patient to be drowsy and he is mildly euphoric regarding his illness. His replies are appropriate but his thinking is retarded. His memory is fair and he is well oriented. No abnormal thought content has been demonstrated.

On physical examination this patient appeared to be a fairly well developed, emaciated, drowsy male, apparently ten years older than his actual age, and in no apparent distress. He exhibits typical Parkinsonian attitude. His head is bent forward and his neck is rigid. The knees are moderately flexed. He has an unwinking stare in an expressionless face. The mouth is open and drooling and there is present a fine tremor of the tongue. Speech is difficult. A fine tremor of the extremities is present at rest and his gait is spastic and propulsive.

No abnormalities were found in the laboratory examination which included chest x-ray, blood count, urinalysis and blood Wassermann.

At the time of this experiment this patient was receiving daily 10 mgm. of benzedrine and 10.4 mgm. of atropine sulphate.

Results:

In all cases the electroencephalograms in all leads in the waking state were normal.

This is in agreement with the findings of Jasper and Andrews. As has been found by Blake and Gerard[1] and Loomis, et al,[2] there was no significant change in the electroencephalogram during hypnosis as compared with that during the waking state in normal subjects.

Jasper and Andrews[3] found that the rhythm of induced tremor in an extremity was related to the electrical rhythm of the opposite cerebral hemisphere, but there was no relationship between the tremor of Parkinson's disease to the electrical rhythm of the opposite cerebral hemisphere. Schwab and Cobb[4] have also found the cortical electrical waves not to be synchronous or in any sort of phase relation to the tremor of Parkinson's disease. These findings are in agreement with results of our experiments.

It is to be noted that in all these patients, the tremor varied in intensity during the waking control period, but was never stopped for more than a moment. The more relaxed the patient was, the less the intensity of the tremor.

In our patient, *Case 1*, the tremor of the involved extremities could be abolished completely under hypnosis. This clinical observation was confirmed by an electromyogram taken during hypnosis. A control strip shows the electromyogram taken before hypnosis. This strip also shows the absence of any relationship of the tremor to the cortical potential rhythm. Under hypnosis the electromyogram shows the heart beat as an artifact. This accounts for the 1.6 per second

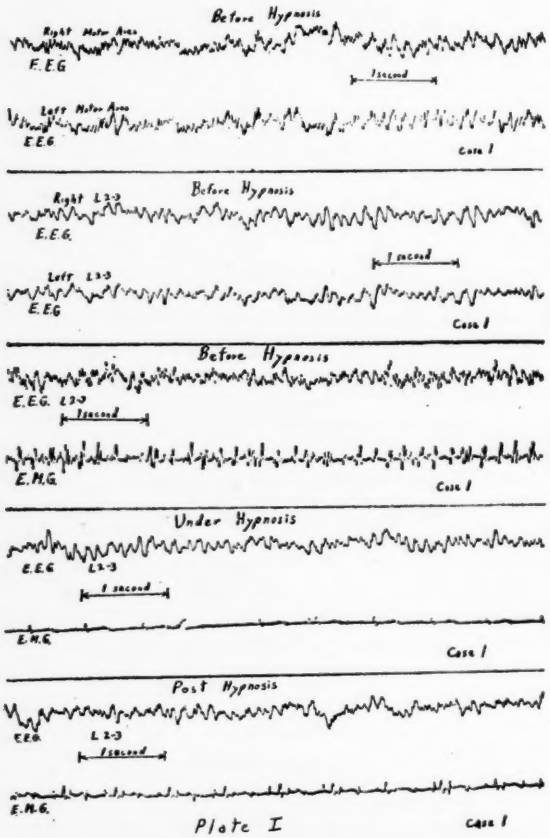

Plate I

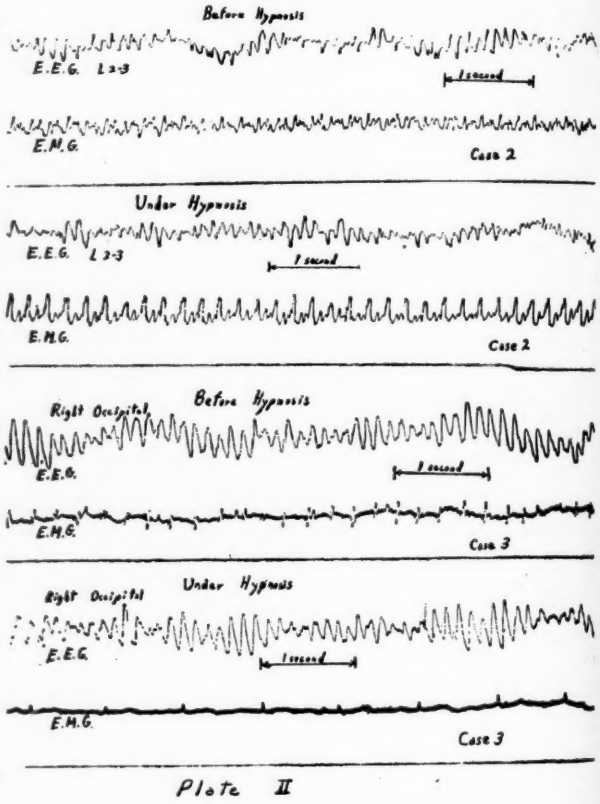

Plate II

PLATE I: Monopolar leads have been taken from various areas of the brain (Case 1). The electroencephalogram is normal for all leads. Before hypnosis there is low voltage fast activity from scalp tension that is demonstrated in the top strip in particular. However, after relaxation this artifact decreases. Hypnosis produces no change in the electroencephalogram as will be noted in the fourth strip from the top. The 1.6 per second waves in the electromyogram of this strip is an artifact from the heartbeat. No muscle activity is demonstrated in this strip during hypnosis. No correlation of muscle activity is noted with cortical rhythm in the third strip from the top.

PLATE II: In Plate II are demonstrated the results for Cases 2 and 3. The second strip from the top shows that there was no particular change in the electromyogram under hypnosis. However, the bottom strip shows abolition of muscle activity under hypnosis for Case 3. The 1.4 per second waves is an artifact from the heartbeat. All four strips show a normal electroencephalogram. The second strip from the top and the bottom strip show no change in the electroencephalogram under hypnosis.

waves. Clinically, by post-hypnotic suggestion, tremor could be abolished in the waking state of this case. On two occasions this was timed and found to last six minutes, five seconds and nine minutes, twenty seconds. In this particular case hypnosis had been used over a month, three to four times a week and was easily induced.

In *Case 2* the tremor was apparently improved under hypnosis as judged by observation, but was never entirely abolished. The electromyogram before and during hypnosis shows no significant change. Again there is an absence of any relationship of cortical potential rhythm to the tremor.

In *Case 3* the tremor was abolished during hypnosis for briefer periods of time than in the case of C. H. The electromyogram before and during hypnosis demonstrates this change. Again there is an absence of relationship of cortical potential rhythm to the tremor. Under hypnosis the electromyogram again shows the heart beat as an artifact. This accounts for the 1.4 per second waves.

Discussion

Since the lesions described in cases of pure Parkinson's disease have been subcortical, one would not expect to find changes in the electroencephalogram. In this series of cases no significant changes were noted.

Although the hypnotic state resembles sleep in many respects, in such states the electroencephalogram resembles that of the waking state and does not show the slow activity and bursts of 14 to 16 per second waves, and later high voltage slow waves of 0.5 to 3 per second that have been described by Loomis et al, Davis and Davis,[5] and others. The hypnotic state does resemble sleep in that the tremor of Parkinson's disease can be abolished or diminished. Yet the cortical activity is that of the waking state. Supposedly the tremor is from a subcortical lesion. One may speculate: Are there suppressor areas in the cortex that influence tremor? Is there a large psychological factor in the production of the tremor? Would retraining help in decreasing the tremor? We do not feel that hypnosis affords anything but temporary relief. It is too time-consuming and has to be repeated too often to be used in therapy.

Conclusions

1) Under hypnosis the tremor of Parkinson's disease can be abolished or diminished in some patients.

2) The electroencephalograph, while patients are under hypnosis, resembles that of the waking state, and does not resemble that of a sleep record.

3) No relationship was found between the cortical potential rhythm and the tremor of Parkinson's disease.

4) No abnormalities were found in the electroencephalograms of patients with Parkinson's disease.

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Psychosomatic Conference

OF THE CINCINNATI GENERAL HOSPITAL*

MILTON ROSENBAUM, M.D., Editor
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CASE 153: BRONCHIAL ASTHMA

Presentation of History — Dr. Edward Kezur

The patient is a twenty-five year old white mother of two children who was seen in psychiatric consultation during her second hospital admission for bronchial asthma. She had been in good health until attacks of wheezing developed in September 1945. She had never suffered from eczema, hay fever, or hives. Her maternal grandmother and great-grandmother are said to have had asthma. Her symptoms were mild at first and responded to symptomatic treatment administered by the family physician. She was skin-tested by an allergist and found to be sensitive to 104 out of 187 ingestants and inhalents. He placed her on an elimination diet but the patient soon gave it up. Later she was given weekly injections of a mixed allergen preparation over a year's period. In May 1947 the patient had a severe asthmatic attack necessitating hospitalization.

At that time she presented the classical clinical picture of bronchial asthma, appearing pale, tired-looking and in acute respiratory distress. Chest examination revealed rapid labored respirations with the expiratory phase greater than the inspiratory, coarse rhonchi throughout, and medium rales in both lung fields. In the hospital the patient's symptoms were relieved by bed rest, helium and oxygen inhalations, epinephrine in oil, aminophylline suppositories, benydril and sedatives. She was discharged one week after admission.

Three weeks later, in June 1947, she again was brought to the hospital with a severe asthmatic attack. It was observed that most of her symptoms diminished shortly after admission, before specific treatment was instituted. During her stay on the ward several observers noted that the patient was emotionally labile and that wheezing was precipitated by visits from relatives, particularly when they brought her two young sons. For these reasons a psychiatric consultation was requested.

The patient had been born and reared in Cincinnati, having two brothers, one four years older and one four years younger. Her parents are living, own their home, and fall in the moderate income bracket. The family is Catholic, but not exceedingly devout. Mother is now 55 years old and the dominant member of the family. The patient describes her as set in her ways, and "money stands out as the greatest thing in her life." When the mother was interviewed, she was found to be an aggressive but affable woman. She impressed the interviewer as a person who was inconsistant, controlling and over-solicitous towards the patient. The father, age 54, is a quiet, passive person, over-shadowed by his wife. The patient describes him as very lenient. The other members of the family say that he always favored the patient.

The patient's birth and early development were normal. She was breast fed to thirteen months. She slept in her parent's bedroom until the age of seventeen years. As a child she feared the dark and recalled one episode of sleep-walking. She was considered spoiled and used to have frequent temper tantrums. Two years after the birth of the younger brother, her older brother developed acute anterior poliomyelitis. Though he recovered without complications, the mother continued to indulge him and to this day he is her favorite.

The patient was a healthy and robust child, tending to be obese. She recalled that at the age of nine mother threatened and punished her for masturbating. She never played with dolls, preferring to tag along after the boys. Her older brother always objected to her trailing after him, though she could run and climb as well as most of his friends. He teased her constantly and pushed her around. She got on better with her younger brother because he did play with her.

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Her first menstrual period occurred at the age of fourteen. Since she was afraid mother would think she had hurt herself, the patient delayed telling anyone. Since then, her periods have been regular and associated with mild cramps. In high school she was moderately popular, went about with a group of girls, and began going on dates in groups when she was sixteen. If the patient returned home after midnight she found mother waiting up to scold her. After graduation from high school she took a job as a stenographer.

In 1942 the patient met and fell in love with a soldier and they soon made plans to be married. Her mother and older brother objected, stating that she should wait until her fiance was out of the Army. However, the patient threatened to go to camp and stay with him, so her relatives gave in and they were married in March 1943. Her husband, a passive good-natured fellow, returned to camp and the patient continued living with her parents. The couple's first child, a boy, was born in September 1944.

The patient's asthmatic symptoms first occurred in September 1945 just after she returned home after visiting her husband at Fort Bragg where he was being readied for overseas duty. It was at this time she began treatment with her family physician for frequent but mild attacks of wheezing. Just before her husband's discharge from service in June 1946, she rented the upstairs apartment in her parent's house without consulting him. Although her husband was opposed to living with inlaws, he did not object because he realized how dependent his wife was on her mother. The patient and husband adjusted fairly well after his discharge although she was frigid. She became pregnant again and delivered a boy in April 1947. Following confinement, the patient became depressed and worried excessively about the new child because he was an "eighth month baby." During this period the attacks of wheezing were more frequent.

The patient's first severe asthmatic attack occurred in May 1947. Two weeks prior to its onset she had become very angry with her mother. The latter had unfavorably compared the patient's husband with her own older son, remarking that if the husband would help around the house more it would be easier on the patient and herself. The patient flew into a rage at this point, which led to the mother threatening, "not to do a damn thing for her anymore." The patient in telling her husband about the incident said she wished they had a place of their own. During the following two weeks, the patient brooded over this incident and thought to herself that she'd never ask mother to watch the children again. Gradually the attacks of wheezing became more prolonged and distressing until she was admitted to the hospital for the first time.

When the patient was discharged a week later, she returned home feeling well but a month later she was back in the hospital with another severe exacerbation of her bronchial asthma. Two weeks before its onset the patient became angry at her husband because he dressed up after dinner to go out and refused to take her along. He aroused her suspicions further by not telling her his destination. She was so angry that she heatedly told him he never had to take her out again. After he left, she confided in mother that she thought he was going to meet another woman. The next day she went through her husband's wallet, finding some unidentified telephone numbers. On commenting about this attack, the patient said, "I knew I was getting this spell off and on for two weeks. I knew it had to come to a head so I could get it over with." Severe symptoms started when she was home alone lying in bed reading a story in "True Confessions Magazine." The story dealt with a woman who was married to an abusive alcoholic. One day the wife learned that her husband had been with another woman, and upon returning home discovered that he had been drinking again. She was so angry that she maneuvered him to the top of the stairs, pushed him down, and he was killed. The patient was reading about the subsequent court trial when the severe attack developed and she was admitted to the hospital for the second time.

All those working with the patient on the ward commented that she is emotionally labile. The nurses believe that she talks herself into an attack. They noticed that she had her worst symptoms after her family and children visited. The patient looks forward to the visits of the psychiatrist, talks eagerly and impresses him as an openly dependent person. She stated that she cries

when sad, but cannot cry when angry. "If I get real mad at my husband, I can't cry." Her husband characterizes her as very sentimental and says she bursts into tears when her older boy doesn't obey her. Her mother believes the patient has not been well since her marriage, and says she is too emotional and gets unduly alarmed by trivial matters. In commenting about the latter, mother said, "I could have slapped her." Mother advises the patient in managing her household affairs and has assumed the burden of the housework since the patient has been ill. She complains that the load had weighed heavily on her with two young grandchildren and an ailing daughter to look after.

Interview with Patient — Dr. Rosenbaum

The interview brought out that the patient's asthma was connected with "nerves" and that she was nervous because she thought her husband was running around. This subject was pursued further and it became clear that her husband was not unfaithful but that she felt he was not showing her enough attention.

Part of this was revealed at the end of the interview as follows:

Dr. *Rosenbaum:* Was your first baby planned?
Patient: No, that was an accident. I didn't want a large family.
Dr. R.: How many children did you want?
Pt.: Well, I only had the second because a friend told me that asthma was cured by having a baby. They get on my nerves a lot.
Dr. R.: How does your husband get along with the children?
Pt.: He likes them both; he is really fond of them. Every night he takes the little boy for a ride.
Dr. R.: Why don't you go?
Pt.: Someone has to be with the baby. I used to go until the baby was born.
Dr. R.: How do you feel about that?
Pt.: Oh, I'm glad he takes the boy out.
Dr. R.: What does your mother say about it?
Pt.: She feels he should help me around the house more, especially on week-ends.
Dr. R.: What does he do on Saturdays and Sundays?
Pt.: Fixes his car; and that's when I get mad!
Dr. R.: Was your husband more attentive to you before the baby came?
Pt.: Well, I just thought so because he says everyone else runs around and he is no different from the others.

Discussion — Dr. Rosenbaum

There are several points in this case worthy of discussion. The most important conflict centers around her dependence on, and her inability to emancipate herself from her mother. The first severe attack of asthma occurred when the patient was angry at her mother and wanted to leave her but at the same time she was afraid to leave the person on whom she had always leaned. Despite her marriage she still continues to live with mother and forces mother to care for her through her illness. Her emotional relationship and reactions to her husband and children are based on similar attitudes towards the members of her own family. Thus she reacts to her husband as if he were her mother and at times her brothers, while she carries over old rivalry problems with the brothers to her sons. The sibling rivalry is based on jealousy of her brothers because they were preferred by mother and also envy of their masculinity.

The precipitating factor responsible for her last attack had to do with her feeling that her husband was running around with other women. However, in the interview, it became clear that there was no evidence that her husband was unfaithful but the idea really referred to her feeling that the husband was neglecting her in favor of her sons. In the interview it was easier for her to say she gets angry at her husband when he fixes the car rather than when he takes the older boy out and leaves her to care for the baby. Why is she so sensitive to feeling neglected by her husband especially when she is being displaced in his affections by her sons? Such a reaction is similar to a child who feels neglected by a parent when the parent rejects the child for a new sibling. This patient is in competition with her children for her husband. This helps us understand why her asthma became worse after the birth of the unwanted child. Her wish to be the child instead of the mother is in part satisfied through her illness in that her mother is forced to care for her. Despite the fact that she is a wife and a mother she has never been able to free herself from her child-like dependent attitude towards her own mother. Like most people she has carried attitudes and sentiments originating in childhood to her present family group. The original competition with the brothers for the parent's affection has been revived in the present competition with her own children for her

husband. The main object of the original competition, the mother, has now been changed to the husband.

The genetic factors related to her unresolved conflicts with the mother have to do with the birth of her brother at the age of 4 and then the sickness of the older brother when she was six years old. In both instances she lost the emotional support of her mother. Also this mother probably had a tendency to keep the patient dependent as evidenced by the fact that she still treats the patient as a child. Another factor which tended to prevent emotional growth was the fact that she slept in her parents bedroom until the age of 17. Obviously there was a long exposure to scenes of parental intercourse which is very traumatic to a child. To the child such scenes are tinged with fear and horror and such children usually develop ideas that sexuality is a dangerous, brutal affair and that father is physically attacking mother. This often leads to neurotic sexual attitudes in later life and to a fear of assuming a mature feminine role. It is of interest that there were nightmares in childhood and a marked tomboyish attitude which also may represent a fear and a denial of feminity. Thus, sexual fears and continual jealousy tend to fixate the child in a dependent relationship.

In the asthma cases we have examined, we usually see two etiologic factors which are important. There is very often evidence of an allergic diathesis and in addition important emotional conflicts. The precipitating factor for the individual attack, in the cases we have observed, are situations which are highly charged emotionally and to which the patient is particularly sensitive. The investigations of the group at the Chicago Psychoanalytic Institute on this problem pointed to rather specific emotional conflicts to which these patients were sensitized. The conflict centered around situations which threatened the relationship—usually an immature dependent one—between the patient and a mother or "mother-figure." In such instances the asthmatic attack was thought to represent the suppressed desire to cry for the mother and thus reestablish the security of the relationship. Situations of this nature would be those in which the relationship was threatened by actual physical separation (leaving the mother), or doing or wishing for something which the patient fears would lead to rejection (separation) by the mother, such as expressions of hostility or sexuality which the patient feels the mother would not condone.

In the present case the precipitating factors do center around dependency on mother and husband and it is obvious the patient acts like a child in her emotional dependency on her mother. There is no evidence of allergic manifestations previous to the asthma but there is a family history of asthma. It may be that in some cases of asthma psychological factors operating in a patient with minimal allergic manifestations may be powerful enough to set off the disease. In this case, as with many others, the alert ward physician can learn a good deal about the patient's illness not only by closely following the clinical course on the ward but also by observing the patient's reactions on the ward to doctors, nurses, other patients, and visitors. The fact that her most severe attack on the ward took place when her children visited is as important an observation as the high white blood cell count with an infection.

The main point to be kept in mind in the handling of an asthmatic is that one should consider emotional factors as well as allergic ones and give them proper consideration in the treatment of the case. In many of these cases the conflict is pretty much on the surface and good results can be obtained by relatively few psychotherapeutic interviews or environmental manipulation; both of which the intelligent and aware doctor can do. In this case I would recommend that the patient be followed by the psychiatrist in the clinic and that the husband be seen in order to give him an idea of some of the patient's emotional needs with the hope that he will be better able to satisfy these needs.

Follow-up Note — Dr. Kezur

Since her discharge from the hospital in July 1947 the patient has been seen in the Psychiatric Clinic at weekly intervals over a period of six months. Concurrently, her husband was seen by another psychiatrist at less frequent intervals in an attempt to better his understanding of the patient's illness and also to encourage him to give more attention to the patient. Though the patient was receiving only occasional doses of benadryl and

aminophyllin she has been symptom free for the past two months. She has been able to assume more responsibility for her household and has been leading an active social life. In general, she has been taking a more mature role in her home.

During this period the patient has had two short acute exacerbations of bronchial asthma. One occurred in reference to her mother. The latter was recently informed that she had hypertension and was instructed to limit her activities. On the day preceeding the patient's exacerbation, mother overexerted herself and the patient became very apprehensive about mother's health and resentful of her behavior. In discussing this episode with the patient she expressed concern about mother's welfare, and fear of showing her hostility to mother. The other exacerbation occurred when her husband chose to go to a movie with a man friend instead of with the patient. She was furious at her husband and said, "You act like you put him before me and that hurts me." In discussing this incident she spontaneously remarked, "I guess I want to be first in everything."

The patient has been showing some gain of insight. Interpretations were made to her when she expressed hostility toward her older son for displaying aggressive behavior and then reported several dreams in which her younger brother met his death. This served as a point of departure in discussing some of her sibling rivalry conflicts. The younger brother is still single and lives with the parents. The patient stated, "It burns me up the way mother fusses over him." In discussing mother's oversolicitous attitude, the patient remarked, "Maybe I want her all to myself." When the patient spoke of looking for an apartment to escape mother's dominance, she revealed that she was not really interested and stated, "I'm afraid to leave my mother. If I get another attack who will take care of me?"

Eclectic Psychotherapy

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Eclectic psychotherapy or selective application of various systems and techniques of psychotherapy, has proven itself of great value in the clinical work of mental hygiene where the type of patient and the time available for treatment varies constantly. The following is a short evaluation of fundamental concepts and raison d'etre for eclectic psychotherapy.

The success of every psychotherapy depends largely on the accessibility of the patient's unconscious and successful interpretation of the elicited unconscious material in a suitable symbolic language inducive to a proper insight into the structure of the neurosis.

Symbolizations or symbolic language are characteristic of all forms of human verbalization and serve not only the purpose of self-expression in convenient forms of condensation and codification but also as disguise for expressions of self-centered antimoral or anti-social tendencies in order to prevent otherwise inevitable unpleasant reactions or retaliation by the environment.

As such they represent a vital protective mechanism for disguised ventilation of neurotic or psychotic impulses and facilitate attempts at integration of the neurotic or psychotic individual with the so-called normal collective group by way of compromise. They originate from a deep-rooted need, inherent in every human individual, to be accepted by and to communicate with the environment on his own terms, that is, in a specific symbolic language of his own making and meaning corresponding to his phylogenetic and ontogenetic background.

In every psychotherapeutic situation therefore the individual type of symbolic language or level of symbolization in which our patient is willing and most capable of communicating with us freely must be taken into careful consideration. To omit this may not only unduly prolong the time required for treat-

ment but may jeopardize completely all possibilities of successful psychotherapy.

For practical purposes two main types of symbolization may be differentiated, each corresponding to a specific approach to the patient's unconscious: (a) the subjective, simple or concrete type originating from a primitive, lower level of earlier phylogenetic and ontogenetic language development and (b) the abstract, objective or composite type on a higher substitute level corresponding to a more mature stage of later linguistic development.

The selection of our strategy and technique of therapy will depend accordingly on whether it is possible to contact the patient on the primitive level of symbols and aphorisms of sex, or to communicate more successfully on an abstract level in terms of personality.

In the first approach we will find it favorable to apply the Freudian principles in our psychotherapeutic work. We will focus our investigation on the level of earlier sex development and attempt a solution of the neurotic root complex by using the impact of cathectic sex symbols and sex aphorism to stimulate a conscious awareness of the patient's true and real self. However, insurmountable resistance is often encountered defying all intensive and prolonged efforts at reviving the genesis of the neurosis on the primitive level of symbolization. It will then be indicated to deviate to a substitute level of symbolization and apply the modified or "reformed" Freudian systems as for instance that of Dr. Horney. This will permit a more active intervention in the patient's life situation and demand a radical shift of our investigation to his personality with its unconscious conflicts, seen in a realistic framework of past and present environment. We will communicate then on such abstract, symbolic terms as self-love and self-hatred, pride and self-vindication and even outspoken sexual aberrations will be dealt with on terms of personality trends of symbolic escape, compliance or aggression.

In many psychotherapeutic situations we may overcome a temporary deadlock by intermittent sessions of hypnosis, narcoanalysis, or a series of electric or insulin shock treatments in order to elicit new unconscious material for the determination of a more appropriate level of symbolic interpretation and thereby establish a better transference relationship with our patient. Thus we may find it sometimes better indicated to limit our psychotherapeutic endeavors only to the superficial level of the patient's immediate reactions and frustrations by society and life in general.

We will apply then the Adler technique or the sociobiological approach of Mayer with such highly differentiated and complex symbolic terms as organ superiorities and inferiorities, defense and compensation mechanisms or other various reaction formations. We may not be able to force the complete surrender of all neurotic symptoms but nonetheless we will be able to teach our patient in the didactic language of direct or implied suggestions to live with his neurosis in a community of adults with a minimum of friction.

Finally there will be instances in which we have to forego entirely all attempts at psychotherapy because we cannot establish any symbolic contact whatsoever and are unable to decode the difficult, sometimes archaic, language of the deteriorated neurotic or latent psychotic. We must then content ourselves with simple occupational rehabilitation and social guidance.

In conclusion it should be emphasized that in general much better results can be achieved if we avoid limiting ourselves to one preconceived approach or psychotherapeutic system especially when applied to the relatively short clinical work of mental hygiene.

By training and experience we should be capable of adapting our techniques to the ever-changing therapeutic situation and always meet the individual needs of our patient. We are fortunate indeed to have a variety of therapeutic avenues at our disposal and ought not be inhibited by the controversy of divergent opinion in using them eclectively to our patient's best advantage.

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